

Stormwater and Erosion Control Regulations

Town of Topsfield Planning Board

1.0 PURPOSE

The purposes of these Stormwater and Erosion Control Regulations are to: 1) Protect, maintain and enhance the public health, safety, environment, and general welfare by establishing minimum requirements and procedures to control the adverse effects of increased post-development stormwater runoff, decreased groundwater recharge, and nonpoint source pollution associated with new development and redevelopment; 2) Protect, maintain and enhance the public safety, environment and general welfare by establishing minimum standards and procedures to control runoff and prevent soil erosion and sedimentation resulting from site construction/alteration and development, as more specifically addressed in the Stormwater Management and Erosion Control Bylaw of the Town of Topsfield.

2.0 DEFINITIONS

The definitions contained herein apply to issuance of a Stormwater Management Permit (SMP) established by the Town of Topsfield Stormwater Management and Erosion Control Bylaw and implemented through these Stormwater Regulations. Terms not defined in this section shall be construed according to their customary and usual meaning unless the context indicates a special or technical meaning.

ALTER: Any activity, which will measurably change the ability of a ground surface area to absorb water or will change existing surface drainage patterns. Alter may be similarly represented as “alteration of drainage characteristics,” and “conducting land disturbance activities.”

APPLICANT: A property owner or agent of a property owner who has filed an application for a stormwater management permit.

BEST MANAGEMENT PRACTICE (BMP): Structural, non-structural and managerial techniques that are recognized to be the most effective and practical means to prevent and/or reduce increases in stormwater volumes and flows, reduce point source and nonpoint source pollution, and promote stormwater quality and protection of the environment. “Structural” BMPs are devices that are engineered and constructed to provide temporary storage and treatment of stormwater runoff. “Nonstructural” BMPs use natural measures to reduce pollution levels, do not require extensive construction efforts, and/or promote pollutant reduction by eliminating the pollutant source.

BETTER SITE DESIGN: Site design approaches and techniques that can reduce a site’s impact on the watershed through the use of nonstructural stormwater management practices. Better site design includes conserving and protecting natural areas and greenspace, reducing impervious cover, and using natural features for stormwater management.

CERTIFICATE OF COMPLETION (COC): A document issued by the Planning Board after all construction activities have been completed which states that all conditions of

an issued Stormwater Management Permit (SMP) have been met and that a project has been completed in compliance with the conditions set forth in a SMP.

CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC):

A recognized specialist in soil erosion and sediment control. This certification program, sponsored by the Soil and Water Conservation Society provides the public with evidence of professional qualifications.

CONVEYANCE: Any structure or device, including pipes, drains, culverts, curb breaks, paved swales or man-made swales of all types designed or utilized to move or direct stormwater runoff or existing water flow.

DEVELOPER: A person who undertakes or proposes to undertake land disturbance activities.

DEVELOPMENT: The modification of land to accommodate a new use or expansion of use, usually involving construction.

DISTURBANCE OF LAND: Any action that causes a change in the position, location, or arrangement of soil, sand, rock, gravel or similar earth material.

DRAINAGE EASEMENT: A legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes.

GRADING: Changing the level or shape of the ground surface.

GRUBBING: The act of clearing land by digging up roots and stumps.

EROSION CONTROL: The prevention or reduction of the movement of soil particles or rock fragments.

EROSION CONTROL PLAN: A document containing narrative, drawings, and details developed by a qualified Professional Civil or Environmental Engineer (PE), Professional Land Surveyor (PLS), Certified Landscape Architect, or Certified Professional in Erosion and Sediment Control (CPESC), which includes best management practices, or equivalent measures designed to control surface runoff, erosion and sedimentation during all phases of construction related land disturbance activities.

ESTIMATED HABITAT OF RARE WILDLIFE AND CERTIFIED VERNAL POOLS:

Habitats delineated for state-protected rare wildlife and certified vernal pools for use with the Wetlands Protection Act Regulations (310 CMR 10.00) and the Forest Cutting Practices Act Regulations (304 CMR 11.00)

FLOOD CONTROL: The prevention or reduction of flooding and flood damage

FLOODING: A local and temporary inundation or a rise in the surface of a body of water, such that it covers land not usually under water.

GROUNDWATER: All water beneath any land surface including water in the soil and bedrock beneath water bodies.

HOTSPOT: Land uses or activities with higher potential pollutant loadings, such as auto salvage yards, auto fueling facilities, fleet storage yards, commercial parking lots with high intensity use, road salt storage areas, commercial nurseries and landscaping, outdoor storage and loading areas of hazardous substances, or marinas.

IMPERVIOUS SURFACE: Any material or structure on or above the ground that prevents water from infiltrating through the underlying soil. Impervious surface is defined to include, without limitation, parking lots, sidewalks, roof tops, driveways, patios, and paved, gravel, compacted dirt surfaced roads and similar surfaces with a runoff coefficient (Rational Method) greater than 85.

INFILTRATION: The act of conveying surface water into the ground to permit groundwater recharge and the reduction of stormwater runoff from a project site.

MASSACHUSETTS ENDANGERED SPECIES ACT: (MGL c.131A) with its implementing regulations (321 CMR 10.00) prohibits the taking of any rare plant or animal species listed as Endangered, Threatened, or of Special Concern (321 CMR 10.04 (1).

MASSACHUSETTS STORMWATER MANAGEMENT POLICY: The Policy issued by the Department of Environmental Protection, and as amended, that coordinates the requirements prescribed by state regulations promulgated under the authority of the Massachusetts Wetlands Protection Act G.L. c. 131 § 40 and Massachusetts Clean Waters Act G.L. c. 21, §. 23-56. The Policy addresses stormwater impacts through implementation of performance standards to reduce or prevent pollutants from reaching water bodies and control the quantity of runoff from a site.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) or MUNICIPAL STORM DRAIN SYSTEM: The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Topsfield.

NEW DEVELOPMENT: Any construction or land disturbance of a parcel of land that is currently in a natural vegetated state and does not contain alteration by man-made activities.

NONPOINT SOURCE POLLUTION: Pollution from many diffuse sources caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into water resource areas.

OPERATION AND MAINTENANCE PLAN: A plan that defines the functional, financial and organizational mechanisms for the ongoing operation and maintenance of a stormwater management system to insure that it continues to function as designed.

OWNER: A person with a legal or equitable interest in a property.

PERSON: Any individual, group of individuals, association, partnership, corporation, company, business organization, trust, estate, the Commonwealth or political subdivision thereof to the extent subject to Town Bylaws, administrative agency, public or quasi-public corporation or body, the Town of Topsfield, and any other legal entity, its legal representatives, agents, or assigns.

PRE-DEVELOPMENT: The conditions that exist at the time that plans for the land development of a tract of land are submitted to the Conservation Commission or Planning Board. Where phased development or plan approval occurs (preliminary grading, roads and utilities, etc.), the existing conditions at the time prior to the first plan submission shall establish pre-development conditions.

POINT SOURCE: Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, or container from which pollutants are or may be discharged.

POST-DEVELOPMENT: The conditions that reasonably may be expected or anticipated to exist after completion of the land development activity on a specific site or tract of land. Post-development refers to the phase of a new development or redevelopment project after completion, and does not refer to the construction phase of a project.

RECHARGE: The replenishment of underground water reserves.

REDEVELOPMENT: Any construction, alteration, or improvement exceeding land disturbance of 7500 square feet or more on existing or proposed slopes of 15% or less, or any activity that will alter an area of 4000 square feet or more on existing or proposed slopes of steeper than 15%, where the existing land has been subject to previous development.

REGULATIONS: These Stormwater and Erosion Control Regulations as currently adopted and amended.

RESOURCE AREA: Any area protected under including, without limitation: the Massachusetts Wetlands Protection Act, Massachusetts Rivers Act, or Town of Topsfield Wetlands Protection Bylaw.

RUNOFF: Rainfall, snowmelt, or irrigation water flowing over the ground surface.

SEDIMENTATION: A process of depositing material that has been suspended and transported in water.

SITE: The parcel of land being developed, or a designated planning area in which the land development project is located.

STORMWATER AUTHORITY: Town of Topsfield Planning Board or its authorized agents. The Topsfield Planning Board or its authorized agents are responsible for coordinating the review, approval and permit process as defined in this Bylaw. Other Boards and/or departments participate in the review process as defined in Section 5 of these Stormwater Regulations.

STORMWATER MANAGEMENT: The use of structural or non-structural practices that are designed to reduce storm water runoff pollutant loads, discharge volumes, and/or peak flow discharge rates.

STORMWATER MANAGEMENT PERMIT (SMP): A permit issued by the Planning Board, after review of an application, plans, calculations, and other supporting documents, which is designed to protect the environment of the Town from the deleterious affects of uncontrolled and untreated stormwater runoff.

STOP WORK ORDER: An order issued which requires that all construction activity on a site be stopped.

TSS: Total Suspended Solids.

WATER QUALITY VOLUME (WQ_v): The storage needed to capture a specified average annual stormwater runoff volume. Numerically (WQ_v) will vary as a function of drainage area or impervious area.

3.0 AUTHORITY

- A) The Rules and Regulations contained herein have been adopted by Planning Board in accordance with the Town of Topsfield Stormwater and Erosion Control Bylaw.
- B) Nothing in these Rules and Regulations is intended to replace or be in derogation of the requirements of the Town of Topsfield Wetlands General Bylaw and Regulations or the Town of Topsfield Floodplain Zoning Bylaw, the Town of Topsfield Rules and Regulations Governing the Subdivision of Land, the Ipswich River Protection District, the Groundwater Protection District or any Rules and Regulations adopted there under.
- C) These Stormwater Regulations may be periodically amended by the Topsfield Planning Board in accordance with the procedures outlined in Section 51-4 of the Town of Topsfield Stormwater and Erosion Control Bylaw.

4.0 ADMINISTRATION

- A) The Planning Board shall administer, implement and enforce these Regulations. The Planning Board that has formally adopted these regulations and that issues permits and/or approvals for projects and/or activities under its specific jurisdiction and in accordance with its specific jurisdictional requirements regarding public notice, hearings and actions shall have approval authority under these Stormwater Regulations. Projects or activities approved by the Planning Board shall be deemed in compliance with the intent and provisions of these Stormwater Regulations.

5.0 APPLICABILITY

- A) These Stormwater Regulations apply to all activities in accordance with the applicability section of the Town of Topsfield Stormwater Management and Erosion Control Bylaw and further described in this section. Projects and/or activities not specifically under the currently regulated jurisdiction of any of the Town of Topsfield Boards, Commissions or Departments but still within the jurisdiction of the Town of Topsfield Stormwater Management and Erosion Control Bylaw must obtain a Stormwater Management Permit from the Topsfield Planning Board in accordance with the permit procedures and requirements defined in Section 6 of these Regulations. For projects and/or activities within the currently regulated jurisdiction of any of the Town of Topsfield Boards, Commission or Departments, the specific application submission requirements, public notices, and fee requirements of the applicable Board, Commission and/or Department shall govern. Notwithstanding these requirements, the Stormwater Management and Erosion Control Plan Contents, Operation and Maintenance Plan Contents, and Stormwater Review Fee, under Section 6.0 L) and Section 6.0 M) of these Regulations must also be met, except as modified in Sections 5.0 B and C below.
- B. If a project falls entirely within the jurisdiction of the Conservation Commission, the Planning Board will accept the Conservation Commission's hearing process and Order of Conditions in lieu of the requirements stated below. The applicant must submit to the Planning Board only two copies of the application cover sheet along with copies of the Conservation Commission's Order of Conditions. The Planning Board shall issue a Stormwater and Erosion Control Permit at its next regularly scheduled meeting after receipt of said materials. The filing fee shall be waived.

- C. If a project is reviewed by the Planning Board for approval under the Town of Topsfield Subdivision Control Rules and Regulations, the Town of Topsfield Zoning By-Law Article IX, Site Plan Review or other rules and regulations, the Stormwater and Erosion Control permitting process shall run concurrently with that process. The standards described below shall apply to the stormwater management components of such review processes and must be met for approval of the project. The applicant must submit to the Planning Board only two copies of the application for a Stormwater and Erosion Control Permit along with any Orders of Conditions from the Conservation Commission. The filing fee shall be waived. The Planning Board shall issue a Stormwater and Erosion Control Permit in conjunction with approval of the following:
- a. Definitive Plan for the Subdivision of Land
 - b. Open Space Development Plan
 - c. Site Plan Review
 - d. Elderly Housing District

6.0 PERMIT PROCEDURES AND REQUIREMENTS

- A) Projects requiring a stormwater management permit shall be required to submit the materials as specified in this section, and are required to meet the stormwater management criteria as specified in Section 7.
- B) Permit Required
1. No land owner or land operator shall receive any of the building, grading or other land development permits required for land disturbance activities without first meeting the requirements of this Bylaw prior to commencing the proposed activity.
 2. Per section 5(B) jurisdiction, the Planning Board may waive all or some of the requirements for a Stormwater Management and Erosion Control Permit application if it determines that some or all of the application requirements are unnecessary because of the size or character of the development project or because of the natural conditions of the site.
 3. The applicant shall make all requests for waivers in writing and provide supporting information or documentation to demonstrate that some or all of the requirements are unnecessary because of minimal environmental impact or other reasons the why such waiver/s should be granted. The Planning Board's decision to grant or deny waivers shall be in writing and shall set forth reasons for the grant or denial. All waiver requests shall be acted upon within 45 calendar days of the date of application for such waivers.
 4. If in the Planning Board's opinion, additional time or information is required for review of a waiver request, the Planning Board may request an extension of the review period. In the event the applicant objects to an extension, or fails to provide requested information, the waiver request may be denied "without prejudice" by the Planning Board.
 5. At the time of the application the applicant shall provide in writing the name of the person who is responsible for erosion and sediment control for the site disturbing activity which is the subject of the application. Said person shall ensure that the approved activity takes place in accordance with the application, plan and permit requirements.
 6. Should a land-disturbing activity associated with an approved plan in accordance with this section not begin during the 3-year period following permit issuance, the

Planning Board may evaluate the existing stormwater management plan to determine whether the plan still satisfies local program requirements and to verify that all design factors are still valid. If the authority finds the previously filed plan to be inadequate, a modified plan shall be submitted and approved prior to the commencement of land-disturbing activities.

C) Filing Application

The applicant shall file with the Town Clerk six (6) copies of a completed application package for a Stormwater Management Permit (SMP) and an electronic application in PDF format on a CD or DVD disc. Permit issuance is required prior to any site altering activity. While the applicant can be a representative, the permittee must be the owner of the site. The SMP Application package shall include:

1. A completed Application Form with original signatures of all owners;
2. A list of abutters, certified by the Assessors Office; (abutters at their mailing addresses shown on the most recent applicable tax list of the assessors, including owners of land directly opposite on any public or private street or way, and abutters to the abutters within 300 feet of the property line of the applicant, including any in another municipality or across a body of water);
3. Stormwater Management and Erosion Control Plan and project description;
4. Operation and Maintenance Plan;
5. Payment of the application and review fees;
6. Inspection and Maintenance agreement;
7. Surety bond.
8. One electronically formatted version of all of the above may be required.
9. The Planning Board reserves the right to request additional copies as necessary.

D) Entry

Filing an application for a permit grants the Planning Board, or its agent, permission to enter the site to verify the information in the application and to inspect for compliance with the resulting permit.

E) Fees

The Planning Board shall obtain with each submission an Application Fee established by the Planning Board to cover expenses connected with the review of the Stormwater Management Plan. The Planning Board is authorized to retain a Registered Professional Engineer or other professional consultant to advise the Planning Board on any or all aspects of these plans. Applicants must pay review fees before the review process may begin.

1. Rules

- a) Application fees are payable at the time of application and are non-refundable.

- b) Application fees shall be calculated by the Planning Board in accordance with the fee schedule below.
- c) These fees are in addition to any other local or state fees that may be charged under any other law, Bylaw, or local ordinance.
- d) The fee schedule may be reduced or increased by the Planning Board. Any such change shall be made at a posted public hearing of the Planning Board not less than (30) days prior to the date upon which the change is to be effective.

2. Application Fees

- a) A non-refundable application fee of \$100 plus \$.0030 times the total square footage of the area to be altered by the project shall be due and payable to the Town of Topsfield at the time an application is filed. Example for a project that alters 10,000 square feet: $\$100 + \$.0030 \times 10,000 = \$130.00$ filing fee.

3. Engineering and Consultant Reviews and Fee

- a) The Planning Board is authorized to require an applicant to pay a fee for the reasonable costs and expenses for specific expert engineering and other consultant services deemed necessary by the Planning Board to come to a final decision on the application. This fee is called the "Engineering and Consultant Review Fee."
- b) Payment may be required at any point in the deliberations prior to a final decision.
- c) Any application filed with the Planning Board must be accompanied by a completed Engineering Consultant Fee Acknowledgement form.
- d) Consultant fees shall be determined at the time of project review based on a specific scope of work.
- e) The services for which a fee may be utilized include, but are not limited to, wetland survey and delineation, hydrologic and drainage analysis, wildlife evaluation, stormwater quality analysis, site inspections, as-built plan review, and analysis of legal issues.
- f) The Planning Board is authorized to require an applicant to pay reasonable costs and expenses for certain activities which utilize the services of Town Staff. This includes such activities as inquiries concerning potential projects as well as site inspections not associated with a pending permit application.
- g) The Planning Board may require any applicant to pay an additional fee of \$30.00 per hour for review, inspection and monitoring services for any project filing that requires an excess of two (2) hours of review, inspection, and monitoring time by a Town Staff person prior to or during construction or after completion of the project..
- h) Subject to applicable law, any unused portion of any fees collected shall be returned by the Planning Board to the applicant within forty-five calendar days of a written request by the applicant, unless the Planning Board decides in a public meeting that other action is necessary.
- i) The Engineering and Consultant Review fees collected under this section shall be deposited in a pass book account held by the Town of Topsfield.

4. Revision of Fee Schedules and Regulations Governing Fees

The Planning Board may review and revise its regulations and fee schedules periodically as it sees fit.

- a) Amendments shall be preceded by a public hearing.
- b) A copy of the written decision will be filed with the town clerk within 10 days after final action is taken.

F) Public Hearings

The Planning Board need not hold a public hearing for projects or activities outside the currently regulated jurisdiction of the Conservation Commission and Planning Board. For projects or activities within the currently regulated jurisdiction of the Conservation Commission or Planning Board, the applicable town Board or Commission shall hold a public hearing in accordance with their own regulations and procedures.

G) Actions

The Planning Board's action, rendered in writing, shall consist of either:

1. Approval of the Stormwater Management Permit Application based upon determination that the proposed plan meets the Standards in Section 7 and will adequately protect the water resources of the community and is in compliance with the requirements set forth in this Bylaw;
 2. Approval of the Stormwater Management Permit Application subject to any conditions, modifications or restrictions required by the Planning Board which will ensure that the project meets the Standards in Section 7 and adequately protects water resources, set forth in this Bylaw;
 3. Disapproval of the Stormwater Management Permit Application based upon a determination that the proposed plan, as submitted, does not meet the Standards in Section 7 or fails to adequately protect water resources, as set forth in this Bylaw.
 4. The Planning Board may disapprove an application "without prejudice" where an applicant fails to provide requested additional information that in the Planning Board's opinion is needed to adequately describe the proposed project. Information shall generally be limited to those items listed in Section 6.0 L) of these Regulations.
- H) Failure of the Planning Board to take final action upon an Application within 45 calendar days of the date of application shall be deemed to be approval of said Application. Upon certification by the Town Clerk that the allowed time has passed without Planning Board action, the Planning Board must issue a Stormwater Management Permit.

I) Plan Changes

The permittee must notify the Planning Board in writing of any drainage change or alteration in the system authorized in a Stormwater Management Permit before any change or alteration is made. If the Planning Board determines that the change or alteration is significant, based on the Stormwater Management Standards in Section 7 and accepted construction practices, the Planning Board may require that an amended application be filed.

J) Appeals of Actions of the Planning Board

A decision of the Planning Board shall be final. Further relief of a decision by the Planning Board made under these Regulations shall be reviewable in the Superior Court in an action filed within 60 days thereof, in accordance with M.G.L. Ch 249. § 4. An appeal of an action by a Board, Commission or Department that has current regulatory authority for a project and/or activity shall be conducted under the applicable appeal provisions of said Board, Commission and/or Department of the Town of Topsfield. Such an appeal shall result in revocation of the written approval as described under Section 4 of these Regulations, until such time as the appeal process of the applicable Board, Commission and/or Department has been resolved.

K) Project Completion

At completion of the project the permittee shall submit as-built record drawings of all structural stormwater controls and treatment best management practices required for the site as required in Section 7. The as-built drawing shall show deviations from the approved plans, if any, and be certified by a Registered Professional Civil or Environmental Engineer.

L) Stormwater Management and Erosion Control Plan Contents

1. The application for a stormwater management permit shall include the submittal of a Stormwater Management and Erosion Control Plan to the Planning Board. This Stormwater Management and Erosion Control Plan shall contain sufficient information for the Planning Board/Conservation Commission to evaluate the environmental impact, effectiveness, and acceptability of the measures proposed by the applicant for reducing adverse impacts from stormwater runoff. This plan shall be in accordance with the criteria established in these regulations and must be submitted with the stamp and signature of a Professional Civil or Environmental Engineer (PE) licensed in the Commonwealth of Massachusetts.
2. The Stormwater Management and Erosion Control Plan shall fully describe the project in drawings, narrative, and calculations. It shall include:
 - a) Contact Information. The name, address, and telephone number of all persons having a legal interest in the property and the tax reference number and parcel number of the property or properties affected;
 - b) A locus map, north arrow, map scale;
 - c) The existing zoning, and land use at the site;
 - d) The proposed land use;
 - e) The location(s) of existing and proposed property lines and easements;
 - f) The location of existing and proposed utilities, roads, Scenic Roads, structures and other impervious areas;
 - g) The site's existing and proposed topography, including existing and proposed slopes with contours at 2 foot intervals,
 - h) The existing site hydrology;
 - i) A description and delineation of existing stormwater conveyances, impoundments, and wetlands on or adjacent to the site or into which stormwater flows;
 - j) A delineation of 100-year flood plains, if applicable;
 - k) Estimated seasonal high groundwater elevation in areas to be used for stormwater retention, detention, or infiltration;
 - l) The existing vegetation, including all trees over 12 inch diameter measured at 4 feet above ground level, and proposed vegetation and ground surfaces with runoff coefficients for each;
 - m) Habitats mapped by the Massachusetts Natural Heritage and Endangered

Species Program as Endangered, Threatened or of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools and Priority Habitats of Rare Species within 500 feet of any construction activity;

n) A drainage area map showing pre and post construction watershed boundaries, drainage area and stormwater flow paths, including municipal drainage system flows;

o) A description and drawings of all components of the proposed stormwater management and erosion control systems including:

- i. Locations, cross sections, and profiles of all brooks, streams, drainage swales and their method of stabilization;
 - ii. Detailed drawings, structural details, materials to be used, construction specifications, and design calculations of all temporary and permanent stormwater, erosion and sediment control structures and devices;
 - iii. Narrative that includes a discussion of each measure, its purpose, its construction sequence and installation timing as they relate to soil disturbance;
 - iv. A plan showing areas of vegetation alteration, soil disturbance and areas of cut and fill;
 - v. The project's phases as they relate to vegetation alteration, soil disturbance, cut and fill, including protected designated stockpile locations with a tabulated sequence of construction and construction schedule, including earthworks;
 - vi. Proposed schedule for the inspection and maintenance of erosion control measures for the project throughout the construction period;
 - vii. Name and 24hr/7day contact information of the person responsible for the site's development;
 - viii. The structural details for all components of the proposed drainage systems;
 - ix. Notes on drawings specifying materials to be used, construction specifications, and expected hydrology with supporting calculations;
 - x. Proposed improvements including location of buildings or other structures, impervious surfaces, and drainage facilities, if applicable;
 - xi. Any other information requested by the Conservation Commission or Planning Board.
3. Hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in this Regulation. Such calculations shall include:
 - a. Description of the design storm frequency, intensity and duration;
 - b. Time of concentration;
 - c. Soil Runoff Curve Number (RCN) based on land use and soil hydrologic group;
 - d. Peak runoff rates and total runoff volumes for each watershed area;
 - e. Information on construction measures used to maintain the infiltration capacity of the soil where any kind of infiltration is proposed;
 - f. Infiltration rates, where applicable;
 - g. Culvert capacities;
 - h. Flow velocities;
 - i. Data on the increase in rate and volume of runoff for the specified design storms, and
 - j. Documentation of sources for all computation methods and field test results.
4. Post-Development downstream analysis if deemed necessary by the Conservation Commission or Planning Board;
5. Soils Information from test pits performed at the location of proposed stormwater management facilities, including but not limited to soil descriptions, depth to seasonal high groundwater, depth to bedrock, and percolation rates. Soils information will be

based on site test pits logged by a Massachusetts Registered Soil Evaluator, or a Massachusetts Registered Professional Engineer;

6. Landscaping plan describing the woody and herbaceous vegetative stabilization and management techniques to be used within and adjacent to the stormwater practice.

M) Operation and Maintenance Plan Contents

An Operation and Maintenance plan (O&M Plan) is required at the time of application for all projects. The maintenance plan shall be designed to ensure compliance with the Permit and the Stormwater and Erosion Control Bylaw and that the Massachusetts Surface Water Quality Standards, 314, CMR 4.00 are met in all seasons and throughout the life of the system. The Operation and Maintenance Plan shall remain on file with the Planning Board and shall be an ongoing requirement. The O&M Plan shall include:

1. The name(s) of the owner(s) for all components of the system;
2. A map showing the location of the systems and facilities including catch basins, manholes/access lids, main, and stormwater devices;
3. Maintenance agreements that specify:
 - a) The names and addresses of the person(s) responsible for operation and maintenance;
 - b) The person(s) responsible for financing inspections, maintenance and emergency repairs;
 - c) An Inspection and Maintenance Schedule for all stormwater management facilities including routine and non-routine maintenance tasks to be performed;
 - d) A list of easements with the purpose and location of each;
 - e) The signature(s) of the owner(s).
4. Stormwater Management Easement(s)
 - a) Stormwater management easements shall be provided by the property owner(s) as necessary for:
 - i. Access for facility inspections and maintenance;
 - ii. Preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event;
 - iii. Direct maintenance access by heavy equipment to structures requiring regular maintenance.
 - b) The purpose of each easement shall be specified in the maintenance agreement signed by the property owner.
 - c) Stormwater management easements are required for all areas used for off-site stormwater control, unless a waiver is granted by the Planning Board.
 - d) Easements shall be recorded with the Essex County Registry of Deeds prior to issuance of a Certificate of Completion by the Planning Board.
5. Changes to Operation and Maintenance Plans
 - a) The owner(s) of the stormwater management system must notify the Planning Board of changes in ownership or assignment of financial responsibility.

- b) The maintenance schedule in the Maintenance Agreement may be amended to achieve the purposes of this Regulation by mutual agreement of the Planning Board and the Responsible Parties. Amendments must be in writing and signed by all Responsible Parties. Responsible Parties shall include owner(s), persons with financial responsibility, and persons with operational responsibility.

7.0 POST-DEVELOPMENT STORMWATER MANAGEMENT CRITERIA

- A) At a minimum all projects shall comply with the performance standards of the most recent version of Massachusetts Department of Environmental Protection (DEP) Stormwater Management Policy, as well as the following:

- B) General Criteria

The following general performance criteria shall be applicable to all stormwater management plans, unless otherwise provided for in this Regulation:

- 1. No Untreated Discharges

All stormwater runoff generated from land development and land use conversion activities shall not discharge untreated stormwater runoff directly to a wetland, local water body, municipal drainage system, or abutting property, without adequate treatment.

- 2. Channel Protection

Protection of channels from bank and bed erosion and degradation shall be provided by controlling the peak discharge rate from the 2-yr storm event to the pre-development rate as required by the MA DEP Stormwater Management Policy.

- 3. Overbank Flooding Protection

Downstream overbank flood and property protection shall be provided by attenuating the post-development peak discharge rate to the pre-development rate for the 10-year, 24-hour return frequency storm event as required by the MA DEP Stormwater Management Policy.

- 4. Extreme Flooding Protection

Extreme flooding and public safety protection shall be provided by evaluating the 100-year, 24-hour return frequency storm event to demonstrate no increased flooding impacts off-site, as required by the MA DEP Stormwater Management Policy.

- 5. Recharge

- a) Annual groundwater recharge rates shall be maintained, by promoting infiltration through the use of structural and non-structural methods. At a minimum, annual recharge from the post development site shall mimic the annual recharge from pre-development site conditions.

The recharge volume may be reduced for developments where clean rooftop runoff (as defined by the MA DEP Stormwater Management Policy) is directed to pervious areas where it can either infiltrate into the soil or flow over it with sufficient time and velocity to allow for filtering. In such a situation, the effective impervious area of the site may be reduced by the roof area to be infiltrated. To use this credit the following conditions must be met:

- The rooftop contributing area to any one discharge location cannot exceed 1000 sq. ft.
- The contributing length of a rooftop to a single discharge location cannot exceed 75 feet.
- Slopes must be less than 5.0% to permit infiltration.
- Discharges must be located at least 10 feet away from the nearest impervious surface, and the rooftop runoff must not commingle with any runoff from paved surfaces at any designated 'hotspot' land use.
- Dry wells or infiltration trenches can be used where necessary to ensure infiltration into less permeable soils.
- The use of rain gardens and bio-retention cells to receive and infiltrate rooftop runoff is encouraged.

- b) The stormwater runoff volume to be recharged to groundwater should be determined using the methods prescribed in the latest version of the Massachusetts DEP Stormwater Management Manual. The recharge requirements shall apply to all activities within the jurisdiction of this Regulation except as noted, and unless specifically waived by Planning Board. The recharge criterion is not required for any portion of a site designated as a stormwater hotspot (see Section 7.10 of this Regulation). In addition, the Planning Board or Conservation Commission may relax or eliminate the recharge requirement at its discretion, if the site is situated on unsuitable soils or is in a redevelopment area with documentation of prior contaminated soils.

6. Structural Practices for Water Quality

a) Presumed Compliance with Massachusetts Water Quality Standards

All structural stormwater management facilities shall be selected and designed using the appropriate criteria from the most recent version of the Massachusetts DEP Stormwater Management Manual.

Applicants are encouraged to meet water quality standards through the use of low impact techniques such as bio-retention cells and vegetated filter strips. For structural stormwater controls not included in the Massachusetts Stormwater Management Manual, or for which pollutant removal rates have not been previously documented by prior applicants, the applicant must document the effectiveness and pollutant removal of the structural control by providing scientific studies, literature reviews, or other citations, in order to receive approval from the Planning Board before including such techniques in the design of a stormwater management system.

Structural best management practices (BMPs) must be designed to remove 80% of the average annual post development total suspended solids (TSS) and 40% for total phosphorus (TP), and 30% for total nitrogen (TN). It is presumed that a BMP complies with this performance goal if it is:

- i) Sized to capture the prescribed water quality volume;

- ii) Designed according to the specific performance criteria outlined in the Massachusetts Stormwater Management Manual;
- iii) Constructed properly; and
- iv) Maintained regularly.

b) Pollutant Loading Calculation Assessment

- i) For residential developments of 20-acres or more, any commercial project with a building 10,000 square feet or more, or any project in an area designated by the Planning Board or Conservation Commission as a sensitive/critical area, a pollutant loading calculation may be conducted upon the request of the Planning Board or Conservation Commission to document compliance with water quality standards by calculating pre-development loads, calculating uncontrolled post-development loads and then applying a prescribed pollutant removal efficiency to selected practices to arrive at a net pollutant load delivery. The post-developed load must be equal to or less than the pre-developed load.
- ii) The methodology for this calculation shall be in accordance with The Simple Method, located in the Massachusetts Stormwater Management Manual entitled: Method of Pollutant Control Calculation for Compliance with Water Quality Standards

7. Water Quality Volume

The prescribed water quality volume required in the sizing of a structural stormwater practice shall be 0.50 inches x the total impervious area of the drainage area and 1.0 inches x the total impervious area of the drainage area in critical areas, as specified in the Massachusetts DEP Stormwater Policy.

The water quality volume may be reduced for developments where clean rooftop runoff (as defined by the MA DEP Stormwater Management Policy) is directed to pervious areas where it can either infiltrate into the soil or flow over it with sufficient time and velocity to allow for filtering. In such a situation, the total impervious area of the site may be reduced by the roof area to be infiltrated. To use this credit the following conditions must be met:

- The rooftop contributing area to any one discharge location cannot exceed 1000 sq. ft.
- The contributing length of a rooftop to a single discharge location cannot exceed 75 feet.
- Slopes must be less than 5.0% to permit infiltration.
- Discharges must be located at least 10 feet away from the nearest impervious surface, and the rooftop runoff must not commingle with any runoff from paved surfaces at any designated 'hotspot' land use.
- Dry wells or infiltration trenches can be used where necessary to ensure infiltration into less permeable soils.
- The use of rain gardens and bio-retention cells to receive and infiltrate rooftop runoff is encouraged.

8. Hydrologic Basis for Design of Structural Practices

For facility sizing criteria, the basis for hydrologic and hydraulic evaluation of development sites are as follows:

- a) Impervious cover is measured from the site plan and includes any material or structure on or above the ground that prevents water from infiltrating through the underlying soil. Impervious surface is defined to include, without limitation: parking lots, sidewalks, roof tops, driveways, patios, and paved, gravel and compacted dirt surfaced roads.
- b) Off-site areas shall be assessed based on their "pre-developed condition" for computing the water quality volume (i.e., treatment of only on-site areas is required). However, if an offsite area drains to a proposed BMP, flow from that area must be accounted for in the sizing of a specific practice.
- c) Off-site areas draining to a proposed facility should be modeled as "present condition" for peak-flow attenuation requirements.
- d) The length of sheet flow used in time of concentration calculations is limited to no more than 50 feet for predevelopment conditions and 50 feet for post development conditions.
- e) Detention time for the one-year storm is defined as the center of mass of the inflow hydrograph and the center of mass of the outflow hydrograph.
- f) The models TR-55 and TR-20 (or approved equivalent) will be used for determining peak discharge rates.
- g) The standard for characterizing pre-development land use for on-site areas shall be woods.
- h) For purposes of computing runoff, all pervious lands in the site shall be assumed prior to development to be in good condition regardless of conditions existing at the time of computation.
- i) If an off-site area drains to a facility, off-site areas should be modeled, assuming an "ultimate buildout condition" upstream.
- j) Determination of flooding and channel erosion impacts to receiving streams due to land development projects shall be measured at each point of discharge from the development project and such determination shall include any runoff from the balance of the watershed which also contributes to that point of discharge.
- k) The specified design storms shall be defined as a 24-hour storm using the rainfall distribution recommended by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) or the Northeast Regional Climate Center "Atlas of Precipitation Extremes for the Northeastern United State and Southeastern Canada."
- l) Proposed residential, commercial, or industrial subdivisions shall apply these stormwater management criteria to the land development as a whole. Individual lots in new subdivisions shall not be considered separate land development projects, but rather the entire subdivision shall be considered a single land development project. Hydrologic parameters shall reflect the ultimate land development and shall be used in all engineering calculations.

9. Sensitive Areas

Stormwater discharges to critical areas with sensitive resources (i.e., swimming areas, aquifer recharge areas, water supply reservoirs) may be subject to additional criteria, or may need to utilize or restrict certain stormwater management practices at the discretion of the Conservation Commission or the Planning Board. The Planning

Board may designate sensitive areas and specific criteria for these areas after conducting a public hearing in accordance with the provisions of Section 51-4 of the Town of Topsfield Stormwater and Erosion Control Bylaw.

10. Hotspots

Stormwater discharges from land uses or activities with higher potential pollutant loadings, known as “hotspots”, as defined in the most recent version of the MA DEP Stormwater Management Manual require the use of specific stormwater management BMPs as specified in the most recent version of the MA DEP Stormwater Management Manual. The use of infiltration practices without pretreatment is prohibited.

8.0 SURETY

The Planning Board may require the permittee to post before the start of land disturbance or construction activity, a surety bond, irrevocable letter of credit, cash, or other acceptable security to be known as the Stormwater Completion Surety. The form of the bond shall be approved by town counsel, and be in an amount deemed sufficient by the Planning Board to ensure that the work will be completed in accordance with the permit. If the project is phased, the Planning Board may release part of the bond as each phase is completed in compliance with the permit but the bond may not be fully released until the Planning Board has received the final inspection report as required by Section 11 of these Regulations and issued a Certificate of Completion

The Planning Board may also require the permittee to secure the future maintenance of the stormwater system by a perpetual surety bond or by a deposit of money of an amount as determined by the Planning Board. This shall be named the Stormwater Maintenance Surety. In the event that the permittee does not follow maintenance procedures and programs as approved by the Planning board, the Board shall have the authority to expend any portion of said, security to provide such maintenance.

9.0 CONSTRUCTION INSPECTIONS

- A) Notice of Construction Commencement. The applicant must notify the Planning Board at least a week in advance before the commencement of construction. In addition, the applicant must notify the Planning Board in advance of construction of critical components of the SWM facility.
- B) At the discretion of the Planning Board, periodic inspections of the stormwater management system construction shall be conducted by a professional civil or environmental engineer or who has been approved by the Planning Board. All inspections shall be documented and written reports prepared that contain the following information:
 - 1. The date and location of the inspection;
 - 2. Whether construction is in compliance with the approved stormwater management plan;
 - 3. Variations from the approved construction specifications; and

4. Any other variations or violations of the conditions of the approved stormwater management plan.
- C) The Planning Board or its designee shall inspect the project site at the following stages, at a minimum:
1. Initial Site Inspection: prior to approval of any plan;
 2. Erosion Control Inspection: to ensure erosion control practices are in accord with the filed plan;
 3. Stormwater Management System Inspection: An inspection will be made of the completed stormwater management system, prior to backfilling of any underground drainage or stormwater conveyance structures.
 4. Final Inspection
 - a) After the stormwater management system has been constructed and before the Completion surety has been released, all applicants are required to submit actual "as built" plans for any stormwater management facilities or practices after final construction is completed and must be certified by a Professional Civil or Environmental Engineer.
 - b) The Planning Board or its designee shall inspect the system to confirm its "as-built" features. This inspector shall also evaluate the effectiveness of the system in an actual storm. If the inspector finds the system to be adequate he shall so report to the Planning Board which will issue a Certificate of Completion. As built plans shall be full size plans which reflect the "as built" conditions, including all final grades, developed by a Professional Civil or Environmental Engineer. All changes to the approved project design should be recorded in red ink on all copies of plans to define changes made. All work deleted, corrections in elevations, and changes in materials, should be shown on the as built drawings.

D) Inadequacy of System

1. If the system is found to be inadequate by virtue of physical evidence of operational failure, even though it was built as called for in the Stormwater Management Plan, it shall be corrected by the applicant before the Certificate of Completion is released. If the applicant fails to act the Planning Board may use the Completion Surety to complete the work.
2. If the Planning Board determines that there is a failure to comply with the plan, the property owner shall be notified in writing of the nature of the violation and the required corrective actions. A Stop Work Order shall be issued until any violations are corrected and all work previously completed has received approval by the Planning Board.

10.0 CERTIFICATE OF COMPLETION

- A) Upon completion, the applicant is responsible for certifying that the completed project is in accordance with the approved plans and specifications and shall provide regular inspections sufficient to adequately document compliance.

- B) The Planning Board will issue a letter certifying completion upon receipt and approval of the final inspection and reports and/or upon otherwise determining that all work of the permit has been satisfactorily completed in conformance with this Regulation.

11.0 PERPETUAL INSPECTION AND MAINTENANCE

A) Maintenance Responsibility

1. Stormwater management facilities and practices included in a stormwater management plan with an inspection and maintenance agreement in accordance with Section 6.M of these Regulations must undergo ongoing inspections to document maintenance and repair needs and ensure compliance with the requirements of the agreement, the plan and this Regulation.
2. The owner of the property on which work has been done pursuant to this Regulation for private stormwater management facilities, or any other person or agent in control of such property, shall maintain in good condition and promptly repair and restore all grade surfaces, walls, drains, dams and structures, vegetation, erosion and sedimentation controls, and other protective devices. Such repairs or restoration and maintenance shall be in accordance with approved plans.

B) Maintenance Inspections

1. All stormwater management facilities must undergo inspections to document maintenance and repair needs and ensure compliance with the requirements of this bylaw and accomplishment of its purposes as specified in the Operation and Maintenance Plan and Maintenance Agreement described under Section 6.M of these regulations.
2. At a minimum, inspections shall occur during the first year of operation and at least once every 3 years thereafter. In addition, a maintenance agreement as specified under Section 6.M of these regulations between the owner and the Planning Board shall be executed for privately-owned stormwater management systems that specifies the Responsible Party for conducting long term inspections.
3. Inspection reports shall be submitted to and maintained by the Planning Board for all stormwater management systems. Inspection reports for stormwater management systems shall include:
 - a) The date of inspection;
 - b) Name of inspector;
 - c) The condition of:
 - i. Pretreatment devices
 - ii. Vegetation or filter media
 - iii. Fences or other safety devices
 - iv. Spillways, valves, or other control structures
 - v. Embankments, slopes, and safety benches
 - vi. Reservoir or treatment areas
 - vii. Inlet and outlet channels and structures
 - viii. Underground drainage
 - ix. Sediment and debris accumulation in storage and forebay areas (including catch basins)

- x. Any nonstructural practices
- xi. Any other item that could affect the proper function of the stormwater management system

d) Description of the need for maintenance;

C) Right-of-Entry for Inspection

The terms of the inspection and maintenance agreement as specified in Section 6.M of these regulations shall provide for the Planning Board or its designee to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. The Planning Board, its agents, officers, and employees shall have authority to enter upon privately owned land for the purpose of performing their duties under this Regulation and may make or cause to be made such examinations, surveys, or sampling as the Planning Board deems necessary, subject to the constitutions and laws of the United States and the Commonwealth.

D) Records of Maintenance and Repair Activities

Parties responsible for the operation and maintenance of a stormwater management facility shall provide records of all maintenance and repairs to the Planning Board, upon request. Parties responsible for the operation and maintenance of a stormwater management facility shall make records of the installation and of all maintenance and repairs, and shall retain the records for at least 5 years. These records shall be made available to the Planning Board during inspection of the facility and at other reasonable times upon request.

E) Failure to Maintain

1. If a responsible person fails or refuses to meet the requirements of the inspection and maintenance agreement, the Planning Board or its agents, officers and employees, after 30 days written notice (except, that in the event the violation constitutes an immediate danger to public health or public safety, 24 hours notice shall be sufficient), may correct a violation of the design standards or maintenance requirements by performing the necessary work to place the facility or practice in proper working condition. In the event that the responsible person, permittee or subsequent owners do not follow maintenance procedures and programs for stormwater facilities as approved by the Planning Board, the Board or its agents shall have the authority to expend any portion of the Stormwater Maintenance Surety to provide such maintenance and repairs as needed.

2. After notification is provided to the person responsible for carrying out the maintenance plan of any deficiencies discovered from an inspection of a stormwater management system, the person responsible for carrying out the maintenance plan shall have 30 days or other time frame mutually agreed to between the Planning Board and the person responsible for carrying out the maintenance plan to correct the deficiencies. The Planning Board or its designee shall then conduct a subsequent inspection to ensure completion of repairs.

12.0 ENFORCEMENT

- A) The Planning Board or an authorized agent of the Planning Board shall enforce this Bylaw, regulations, orders, violation notices, and enforcement orders, and may pursue all civil, criminal and non-criminal remedies for such violations.

B) Notices and Orders

1. The Planning Board or an authorized agent of the Planning Board may issue a written notice of violation or enforcement order to enforce the provisions of this Bylaw or the regulations there under, which may include requirements to:
 - a) Cease and desist from construction or land disturbing activity until there is compliance with the Bylaw and the stormwater management permit;
 - b) Repair, maintain; or replace the stormwater management system or portions thereof in accordance with the operation and maintenance plan;
 - c) Perform monitoring, analyses, and reporting;
 - d) Fix adverse impact resulting directly or indirectly from malfunction of the stormwater management system.
 2. If the enforcing person determines that abatement or remediation of adverse impacts is required, the order may set forth a deadline by which such abatement or remediation must be completed. Said order may further advise that, should the violator or property owner fail to abate or perform remediation within the specified deadline, the Town of Topsfield may, at its option, undertake such work, and the property owner shall reimburse the Town of Topsfield for expenses incurred.
 3. Within thirty (30) days after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner shall be notified of the costs incurred by the Town of Topsfield including administrative costs. The violator or property owner may file a written protest objecting to the amount or basis of costs with the Planning Board within thirty (30) days of receipt of the notification of the costs incurred. If the amount due is not received by the expiration of the time in which to file a protest or within thirty (30) days following a decision of the Planning Board affirming or reducing the costs, or from a final decision of a court of competent jurisdiction, the costs shall become a special assessment against the property owner and shall constitute a lien on the owner's property for the amount of said costs. Interest shall begin to accrue on any unpaid costs at the statutory rate provided in G.L. Ch. 59, § 57, after the thirty-first day at which the costs first become due.
- C) Any person who violates any provision of the Town of Topsfield Stormwater and Erosion Control Bylaw, or regulation, order or permit issued there under, may be ordered to correct the violation and/or shall be punished by a fine of not more than \$300. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.
- D) Non-Criminal Disposition. As an alternative to criminal prosecution or civil action, the Town of Topsfield may elect to utilize the non-criminal disposition procedure set forth in G.L. Ch. 40, §21D and the applicable Town by-law should the Town of Topsfield adopt said statute. In such case the Highway Superintendent or his agent of the Town of Topsfield shall be the enforcing person. The penalty for the 1st violation shall be \$100. The penalty for the 2nd violation shall be \$200. The penalty for the 3rd and subsequent violations shall be \$300. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.
- E) Appeals. The decisions or orders of the Planning Board shall be final. Further relief shall be to a court of competent jurisdiction.
- F) Remedies Not Exclusive. The remedies listed in this Bylaw are not exclusive of any other remedies available under any applicable federal, state or local law.

13.0 SEVERABILITY

The invalidity of any section, provision, paragraph, sentence, or clause of these Regulations shall not invalidate any section, provision, paragraph, sentence, or clause thereof, nor shall it invalidate any permit or determination that previously has been issued.

Accepted unanimously by the Planning Board
May 10, 2006